



SAT-IDP

SAT-IDP Series

User Guide

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Honeywell Global Tracking Ltd

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Revision History

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Preface

General Safety Warnings



WARNING: Before applying power to the equipment, the user must read all instructions. If in any doubt, consult suitably trained service personnel.



WARNING: This product may contain magnetized material. Due care should be taken when handling fully magnetized material as physical personal injury may occur by the inadvertent attraction of magnetized material to other similar or ferro-magnetic material.



WARNING: Close proximity (less than 100mm) to the magnetized material may affect the operation of heart pacemakers.



WARNING: The SAT-401E magnetic feet are not designed for fitting to vehicles driven at speed or over rough terrain. It is the user's responsibility to ensure that the equipment is secure when fitted to a vehicle and that the vehicle is driven safely.

Note:

- Retain this manual for future reference.
- No user serviceable parts inside. Refer servicing to qualified service personnel.
- The captive cable and gland nut on SAT-IDP is not user replaceable, tampering with these may void the warranty. Damage to the cable could result in the terminal having to be replaced.
- The equipment contains no replaceable fuses.
- Observe all warnings on the equipment and in this manual.
- Follow all installation and operating instructions.
- Connect the equipment to a power supply only of the type described in the operating instructions or marked on the equipment.
- The unit should be located away from power lines.
- Maximum Permissible Exposure (MPE) limits – This equipment complies with FCC (OET bulletin 65) general population/uncontrolled exposure limits as applied to RF energy from a Mobile device. (A mobile device being defined as a transmitting device designed to be used in other than fixed locations and to be generally used in such a way that a separation distance of at least 20 centimetres is normally maintained between the transmitter's radiating structures and the body of the user or nearby persons.)

Chapter 1 – Regulatory and Type Approval

1.1 Inmarsat Type Approval

The SAT-IDP has been certified for operation on the Inmarsat Network (Inmarsat Type Approval Certificate Number xxxx– see Appendix D).

1.2 European Compliance

The equipment is designed, tested and declared to conform to the following European directives and standards (The Declaration of Conformity can be found at Appendix C).

CE Mark

The SAT-IDP confirms all essential parts of the following directives:

RED Directive 2014/53/EU

Low Voltage Directive 2014/35/EU

EMC Directive 2014/30/EU

RoHS Directive 2011/65/EU

WEEE Directive 2002/96/EC

Relevant Standards

Radio standards per Article 3.2.: ETSI EN 301 426 v1.2.1

EMC standards per Article 3.1b): ETSI EN 301 489-20 v1.2.1

ETSI EN 301 489-1 v1.8.1

Safety standards per Article 3.1a): EN 62368-1

Ingress Protection Classification: EN60529:1999

1.3 FCC Authorisation

The following information is provided on the device covered in this document in compliance with FCC regulations:

- Model number: SAT-IDP (all variants)
- Company Name: EMS Technologies Canada Ltd.
Honeywell Global Tracking CA
400 Maple Grove Rd
Ottawa ON K2V 188
CANADA

The product complies with FCC requirements:

Sections 25.202 and 25.216 of FCC Title 47 of the Code of Federal Regulations (CFR).
FCC OET Bulletin 65 as applied to RF energy from a mobile device.
Pre-emption.

FCC statements:

1. This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference and (2) this device must accept any interference received, including interference that may cause undesired operation.

2. FCC CFR:15.21 Information to user.

The user's manual or instruction manual for an intentional or unintentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. In cases where the manual is provided only in a form other than paper, such as on a computer disk or over the Internet, the information required by this section may be included in the manual in that alternative form, provided the user can reasonably be expected to have the capability to access information in that form.

3. FCC CFR 15.105:

For a Class B digital device or peripheral, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual:

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

1.4 ISED compliance Statements

Operation is subject to the following two conditions:

- 1) This device may not cause interference.
- 2) This device must accept any interference, including interference that may cause undesired operation of the device.

Déclarations de conformité:

.L'exploitation est autorisée aux deux conditions suivantes :

- (1) l'appareil ne doit pas produire de brouillage, et
- (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Caution Statements:

- This equipment complies with radio frequency exposure limits set forth by Industry Canada for an uncontrolled environment.
- This equipment should be installed and operated with a minimum distance of 20 cm between the device and the user or bystanders.

Déclarations de mise en garde:

- Cet équipement est conforme aux limites d'exposition aux radiofréquences définies par Industrie Canada pour un environnement non contrôlé.
- Cet équipement doit être installé et utilisé avec un minimum de 20 cm de distance du dispositif et l'utilisateur ou des tiers.

1.5 Limitations on Intended Operating Environment

The SAT-IDP can be used in a wide range of control and monitoring applications. When third party equipment is attached, such third-party equipment and all cabling must be of suitable design and installation to ensure that the overall system complies with the requirements of the appropriate CE directives.

Guidance notes for the installation and use of the SAT-IDP must be strictly followed.

Honeywell Global Tracking exercises due diligence to ensure that the equipment is suitable for use in stated applications, but ultimate responsibility for the compliance of a complete system must rest with the prime contractor at a site where local conditions may require additional EMC precautions be taken.



WARNING: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment and may void the warranty.

Chapter 2 – General Description

This document refers to the SAT-IDP series, including their variants. Variants are indicated by alphabetic suffixes. Most variants differ in physical characteristics only – for example bottom or side entry connector, magnetic feet etc.

The SAT-IDP is a compact, single unit, low data rate satellite terminal, designed to operate over the Inmarsat satellites using the IsatData Pro protocols. With an integral GPS receiver, the SAT-IDP provides low cost satellite communications for applications such as asset tracking, telematics and SCADA exception reporting.

The SAT-IDP utilises five Inmarsat satellites providing near Global Coverage. Each satellite covers an 'Ocean Region' (Global – Americas, Global - Europe, Middle East, Africa, Global - Asia Pacific, Spot - Atlantic Ocean Region West South Central and Spot - Indian Ocean Region North East).

IsatData Pro mode of operation provides a data rate for the forward (to terminal) messages of approximately 3000 Symbols/second* with typical latency of: 100 bytes: 12 seconds; 1,000 bytes: 70 seconds**, Forward channel can contain 2 to 6400 bytes**.

Return channel (from terminal) messages can contain 2 to 10,000 bytes** with a typical latency of: 100 bytes: 20 seconds; 1,000 bytes: 45seconds**. Traffic channel, on which messages to the terminal are received, is determined from the internally stored configuration obtain from the Broadcast/Forward channel.

Mounting is via 3x M4 (No. 8) bolts or central M25 thread on base. Cable entry is from the centre base, connector details are given on page 18.

* (As per IDP protocol spec- User bits are less than that because of protocol overheads)

** (For all latency, max size values are as per IDP protocol spec)

2.1 Model Types

The SAT-IDP Model Types consist of the standard model (as shown in **Figure 1**) and the variants shown in **Figure 2** and **Figure 3**. All units are functionally identical and only differ in that they offer various cable exit and termination options, which may then be used with optional extension cables.



Figure 1 – SAT-IDP



Figure 2 – SAT-IDP-BC



Figure 3 – SAT-IDP-SC

The SAT-401E incorporates three magnetic mounting feet for use as a portable solution.



WARNING: The SAT-IDP-SC magnetic feet are not designed for fitting to vehicles driven at speed or over rough terrain. It is the user's responsibility to ensure that the equipment is secure when fitted to a vehicle and that the vehicle is driven safely.

Chapter 3 - Installation



IMPORTANT: Installation and service should only be carried out by suitably qualified service personnel.

Local working practices and regulations for wiring and installations must be adhered to at all times.

3.1 Power Requirements

The equipment is powered from an external DC supply of 9.6V to 32V. The DC supply must be capable of providing a maximum VA of 9.6W, for example 1A @ 9.6V or 0.3A @ 32V.

External power is connected via the 12-way connector (see page 18 for connector details and pin connections)

When installing the SAT-IDP, adequate circuit protection must be provided as required by local regulations.



IMPORTANT: If connecting to an external battery, the SAT-IDP requires an external fast acting fuse connected in series with the +ve supply at the battery end of the cable.

Input voltage	Fuse rating	Minimum wire gauge
9.6 to 32 VDC	2A	24 AWG (7/0.2)



IMPORTANT: If an external AC/DC Adaptor is used to power the equipment, it must meet the requirements of EN 60950-1. The output of the Adaptor must also meet the SELV limits of EN 60950-1.

3.2 Cable

It is recommended that cable routing is planned and operation tested before committing to a permanent installation. The maximum cable diameter must not exceed 7mm, the maximum allowed by the terminal connector.

- The SAT-IDP is supplied without cable or mating connector as standard. Suitable cables and/or connectors can be purchased separately from your equipment supplier or authorised dealer. See page 18 for connector and pin out details.
- When routing the cable avoid sharp edges and pinches.
- Be aware of the minimum static bend radius of the cable.
- Mechanical pressure on the cable may cause loss of functionality or even a short circuit and subsequent damage to the terminal.
- Use only shielded cables for connecting to peripherals. Using shielded cables ensures that the appropriate EMC classifications are maintained.
- The captive cable on the SAT-IDP-BC, SAT IDP-SC, SAT-401C and SAT-401E is not user replaceable, tampering with the cable or their fixing points may void the warranty. Damage to the cable could result in the terminal having to be replaced.

3.3 Location

- The SAT-IDP is only weatherproof if the interface connector is correctly mated. Please consult your dealer if you are in any doubt.
- The SAT-IDP should be located with an unobstructed, clear view of the sky.
- The SAT-IDP should be mounted on a flat horizontal surface.
- Consider the position of the satellites. The Inmarsat satellites are in geostationary orbits above the equator. (i.e., in the Northern hemisphere the satellites are located to the South; in the Southern hemisphere the satellites are located to the North.) The further away from the Equator the SAT-IDP is, the lower the degree of elevation will be above the horizon.
- If you plan to install the SAT-IDP in a partially enclosed environment, test operation before committing to a permanent installation.
- On vehicles, the SAT-IDP should be located on the highest point possible, free from obstructions and safe from damage during normal operation of the host vehicle.
- For installations exposed to shock and/or vibration, use a mounting scheme that isolates the unit from the excessive shock and/or vibration.
- Choose a location that is not near radar installations, other satellite communication equipment, and/or microwave dishes to prevent RF jamming.
- Avoid mounting on hot surfaces.
- Avoid prolonged exposure to anti-freeze, detergents, windscreen washer fluid and any other similar chemicals.

3.4 Mounting

- If possible, try the installation before drilling any holes or fixing cable.
- Record the unit ISN number (Inmarsat Serial Number) for future reference.
- Fit the supplied rubber pads to the base of the SAT-401E to avoid damage to the vehicle.
- The SAT-IDP and SAT-401C variants may be mounted by using either the three outer M4 mounting holes or the M25 thread on the base.
- The SAT-IDP-SC, SAT-401E is designed as a portable solution and does not require permanent fitting.
- If using the three outer mounting holes (recommended for installations exposed to shock and/or high vibration and/or uneven surfaces):
 - Bore a central 40mm hole.
 - Position the terminal centrally and mark the location of the three mounting holes.
 - Drill three 4.5mm mounting holes.
 - Secure the terminal in place using M4 (No.8) nuts and bolts - **Do not over tighten** (1.5Nm Max)
 - Alternatively, secure using fastenings appropriate to the mounting surface - **Do not over tighten** (1.5Nm Max).
- If using the M25 base mounting thread:
 - Bore a 26mm hole to pass the connector (SAT-IDP only) and mounting thread through (and cable on SAT-401C model).
 - Secure using M25 nut - **Do not over tighten** (2.0Nm Max).
- Do not paint the SAT-IDP enclosure.
- Do not attach any foreign object to the enclosure anywhere above the three outer mounting holes.

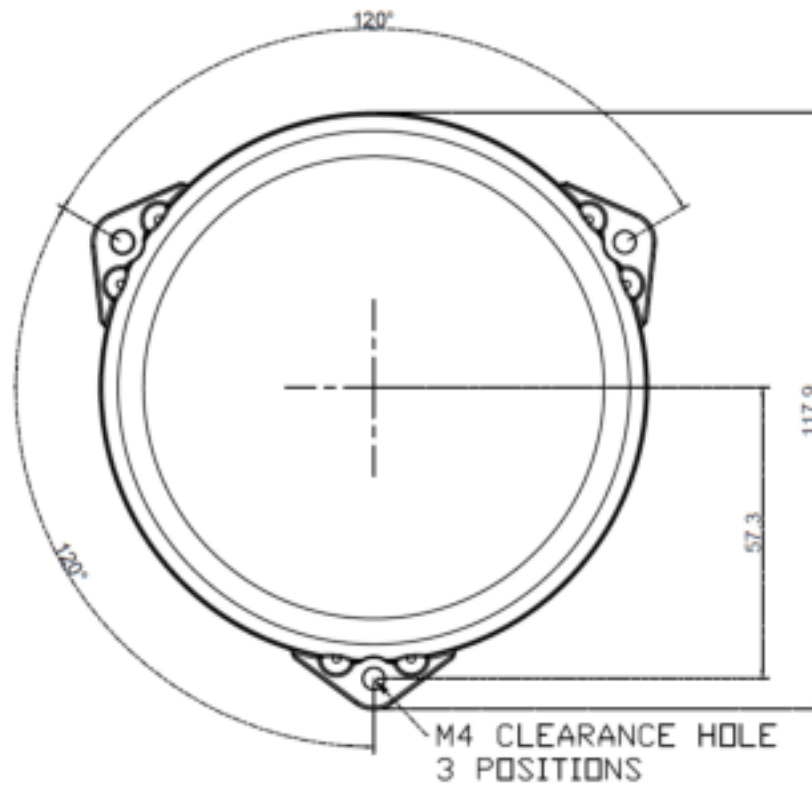


Figure 4 - SAT-IDP M4 Drilling Diagram (not to scale)

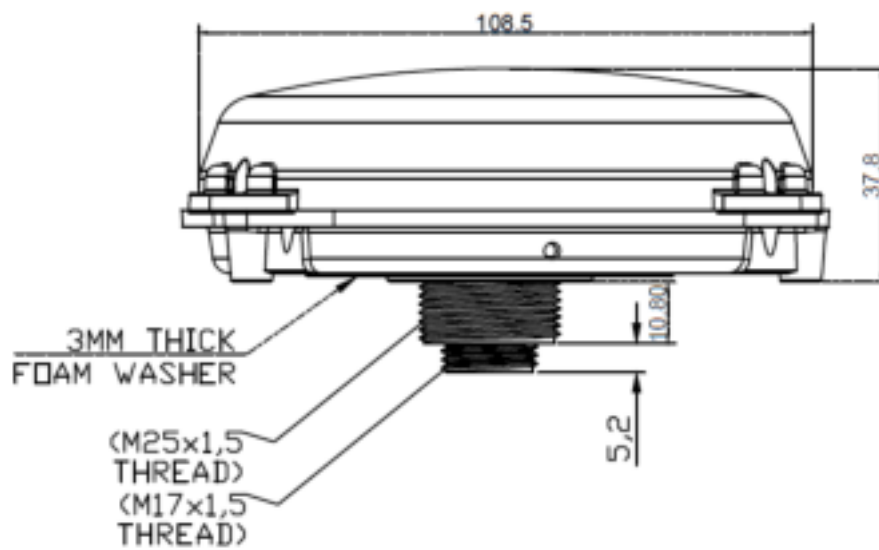


Figure 5 - SAT-IDP M25 Drilling Template (not to scale)

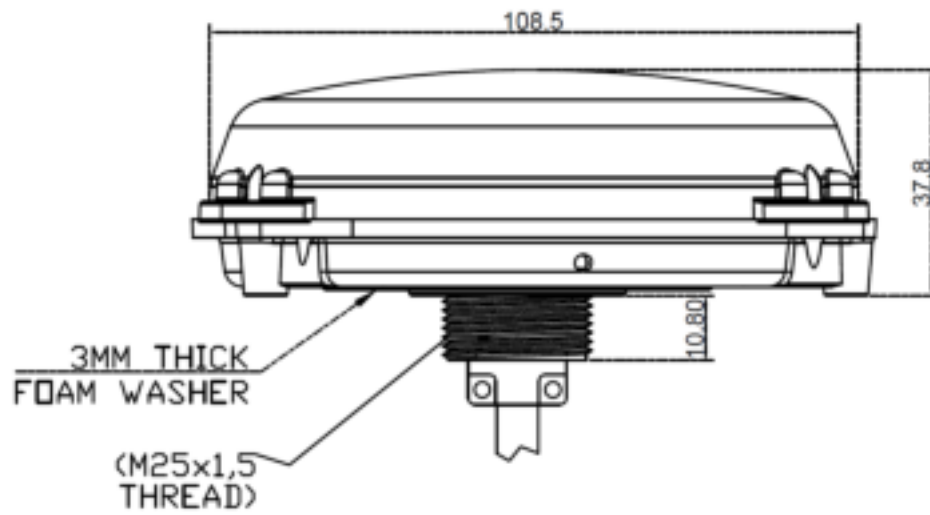


Figure 6 - SAT-401C M25 Drilling Template (not to scale)

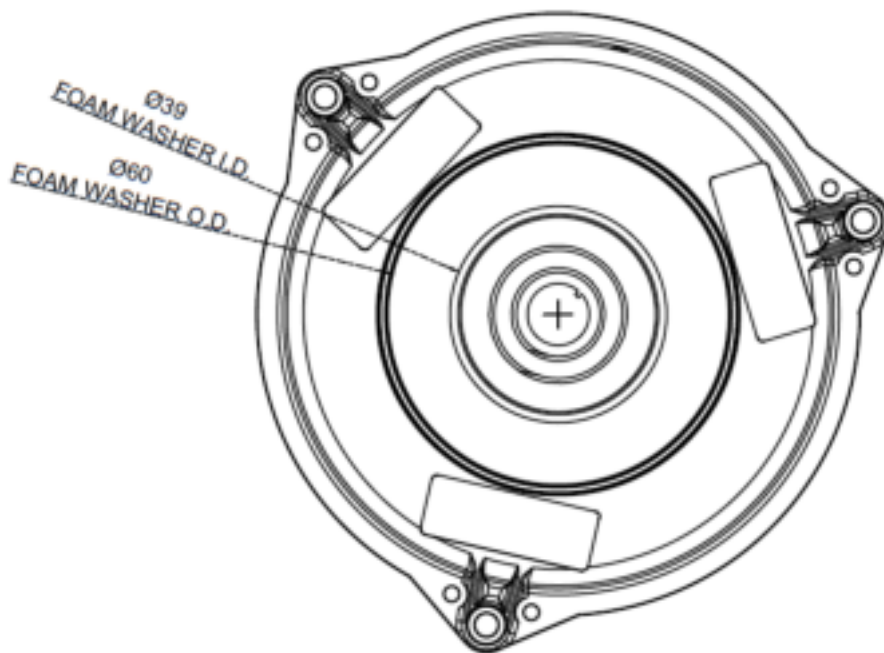


Figure 7 - SAT-IDP Foam Washer Dimensions (not to scale)

3.5 Applying Power

Before connecting the SAT-IDP to an external voltage source, ensure that the polarity is correct and the voltage source (at the input to the SAT-IDP) is between 9.6V and 32V. See page 18 for connector pin out description. See page 8 for further details and requirements regarding the power source.

Check the circuit, in particular fuses and/or circuit protection devices.

Always ensure that the ground connection is connected before power is applied.

3.6 Operational Check

When the SAT-IDP first powers up, it starts its GPS receiver. After it has acquired its GPS position it identifies the best Ocean Region to use and proceeds to acquire the IsatData Pro satellite signals. If, for some reason, the unit is not able to obtain a valid GPS reading within two minutes, it will attempt to acquire IsatData Pro on the default Ocean Region satellite (AORE).

If you wish to check the overall system operation it will be necessary to ensure that the terminal is activated on a known gateway and that you have access to the application running there so that you can view the received data. If you do not have access to an application of your own, it is possible to set up your terminal on one of the Honeywell Global Tracking websites in order to perform end-to-end testing. Please consult your service provider for details of the activation that has been put in place for your terminal. If you do not have access to the application, it is still possible to check the local operation of the terminal and its installation by using the following sequence. In this case it will then be necessary to check the application part of the system later.

With the SAT-IDP in position, apply power to the unit and monitor the indicator. The indicator cycles through the patterns shown in the tables, with each state lasting for half a second.

RED	OFF	OFF	OFF	IsatData Pro Off
RED	OFF	GREEN	OFF	Acquiring Bulletin Board
GREEN	GREEN	RED	RED	Demodulating Bulletin Board*
GREEN	ORANGE	GREEN	OFF	Acquiring Traffic Channel

Once it has acquired the traffic channel, the unit will cycle through the following two states in normal operation.

GREEN	GREEN	GREEN	OFF	Demodulating Traffic Channel
GREEN	OFF	OFF	OFF	Idle part of TC Frame

The terminal will transmit its initial report (the indicator turns orange for 2 or 10 seconds) after successfully demodulating the Traffic Channel. The total process to transmission will normally take less than one minute. However, if the unit needs to acquire the Bulletin Board (see Chapter 8), this time could extend to as much as eight minutes.

Providing that your terminal has been activated and set up within an application, the data will be available within approximately one minute of the actual transmission, although this is dependent on the operation of the software being used by your service provider as well as the link to the Honeywell Global Tracking server.

Your service provider will be able to supply you with further details regarding the normal use of the terminal, as well as scripts and forward channel use.



WARNING: The information in this chapter only applies to terminals that are set at Factory Default and with the default script installed (see Chapter 5 – Factory Defaults). If you are unsure about the state of your terminal, you should contact your service provider.

Chapter 4 - Functionality

For full functional details of the SAT-IDP contact your authorised dealer.

Chapter 5 – Factory Defaults

The terminal is shipped with Factory Defaults set. When power is initially applied, the script timer, alarm and operation definitions are cleared; the terminal then powers up, acquires the GPS position and tunes to the best ocean region for the terminal location. Once the terminal has acquired the IDP satellite signal it transmits a single position report burst.

Chapter 6 – Maintenance and Support

6.1 Cleaning

Dust and finger marks can be removed using a soft damp cloth. Avoid using domestic cleaning products.

6.2 Technical Support and Information

For technical support, product queries and information please contact your equipment supplier or authorised dealer. Alternatively, contact Honeywell Global Tracking directly for details of your dealer:

EMS Technologies Canada Ltd.

Honeywell Global Tracking CA

400 Maple Grove Rd

Ottawa ON K2V 188

CANADA

Support email: hgt-tracking-support@honeywell.com

General email: hgt-info@honeywell.com

General www: <http://www.gt.honeywell.com>

Chapter 7 - Interfaces

The SAT-IDP interface connector is a 12 way plug that mates with a Bulgin Buccaneer 400 series socket. Bulgin part numbers for the mating connector are:

1. Connector: PX0410/12S/6570
2. Solder contacts: SA3179/1 (pack of 10)
3. Crimp contacts: SA3179 (pack of 10). Contact Bulgin for crimp tool details
4. Insertion/extraction tool: 13027

Items 1, 2 and 4 can be purchased as a kit from your equipment supplier or authorised dealer (Honeywell Global Tracking product number: A021B01).

7.1 SAT-IDP Interface Pinout

All SAT-IDP models have the following pin/cable connections:

Pin	Function	Cable colour code (if supplied by Honeywell Global Tracking)
1	0V (cable screen)	[Screen]
2	Voltage In (VIN+)	Red
3	0V (VIN-)	Orange
4	I/O 1	Yellow
5	OD_OUT	Green
6	I/O 3	Blue
7	I/O 2	Purple
8	Rx	Grey
9	Tx	White
10	0V (VIN-)	Black
11	I/O 4	Brown
12	I/O 5	Pink

7.2 Interface Functions

- VIN+, VIN- External power input – 9.6V to 32V DC
- Tx, Rx RS232 serial control/data interface transmit (Tx) and receive (Rx) lines
- 4800 or 9600bps, asynchronous, no parity, 8 bit data, 1 stop bit. (For firmware upgrades, rates up to 115200 bps can be selected.)
 - Control function – for configuring the unit
 - Data function – for message input/output

OD_OUT A single open drain output (250mA max sink current). Suitable for driving relays, indicators etc.

I/On Five general purpose inputs/outputs individually configurable as:

- High voltage digital input (15-32V maximum) with optional falling edge interrupt capability
- Switch input (internal pull up used with external switch to ground) with optional falling edge interrupt capability
- Digital input (0-15V maximum) with optional falling edge interrupt capability
- Analogue input (12 bit ADC, 0 to 3.3V)
- Low voltage digital output (3.3V)

Note on USB to RS-232 Converters

Honeywell Global Tracking recommends the FTDI chipset USB to serial converters for use with the SAT-IDP terminal and the terminal programming utility software.

7.3 General Purpose I/O

Figure 8 shows a conceptual drawing of one of the general purpose I/O's.

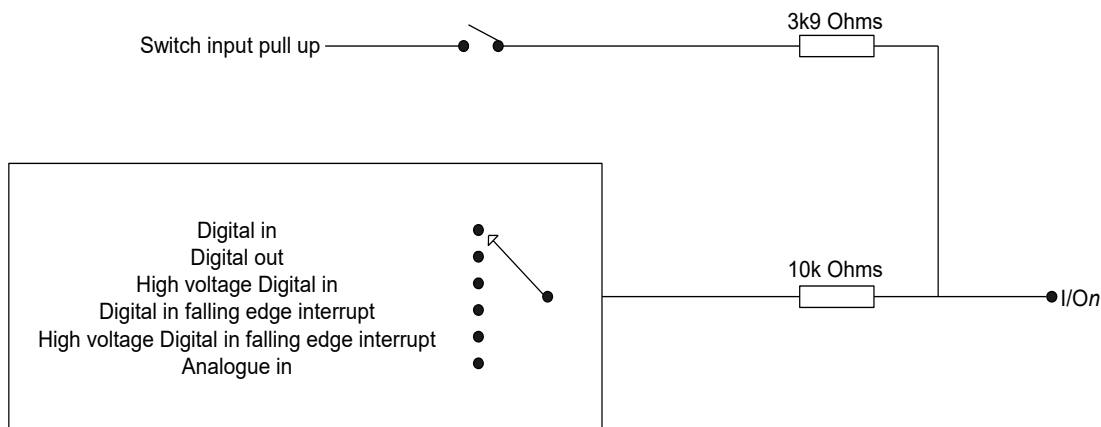


Figure 8 – SAT-IDP general purpose Input block diagram

Note that the pull up is only available if the multi way switch is in positions 1 or 4.

Figure 9 shows a conceptual drawing of the open drain output (OD_OUT).

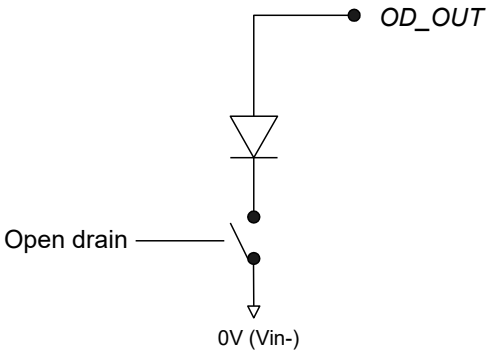


Figure 9 – SAT-IDP output block diagram

Chapter 8 – Interpreting the Indicator

A single status indicator is provided on the SAT-IDP. The indicator goes through 4 states every 2 seconds generating the patterns in the table below.

State 1	State 2	State 3	State 4	Meaning
RED	RED	RED	RED	Fault
RED	OFF	OFF	OFF	Modem OFF
RED	OFF	GREEN	OFF	Acquiring Bulletin Board
GREEN	GREEN	RED	RED	Tracking Bulletin Board
GREEN	ORANGE	GREEN	OFF	Acquiring Forward Channel
GREEN	GREEN	GREEN	OFF	Tracking Forward Channel
GREEN	OFF	OFF	OFF	Idle
ORANGE	ORANGE	ORANGE	ORANGE	Transmitting

In IDP mode the terminal stores Bulletin Board information in internal non-volatile memory and only needs to tune to the Bulletin Board if the internal information needs updating or if a Traffic channel cannot be found. Therefore, from power on, the 'Acquiring Bulletin Board' and 'Demodulating Bulletin Board' stages will normally not occur.

Note: The indicator can be disabled (off state) or enabled via script control. The indicator may therefore not come on when power is applied. Contact your authorised dealer for details of any script that may have been programmed into the SAT-IDP.

Chapter 9 – Security Guide

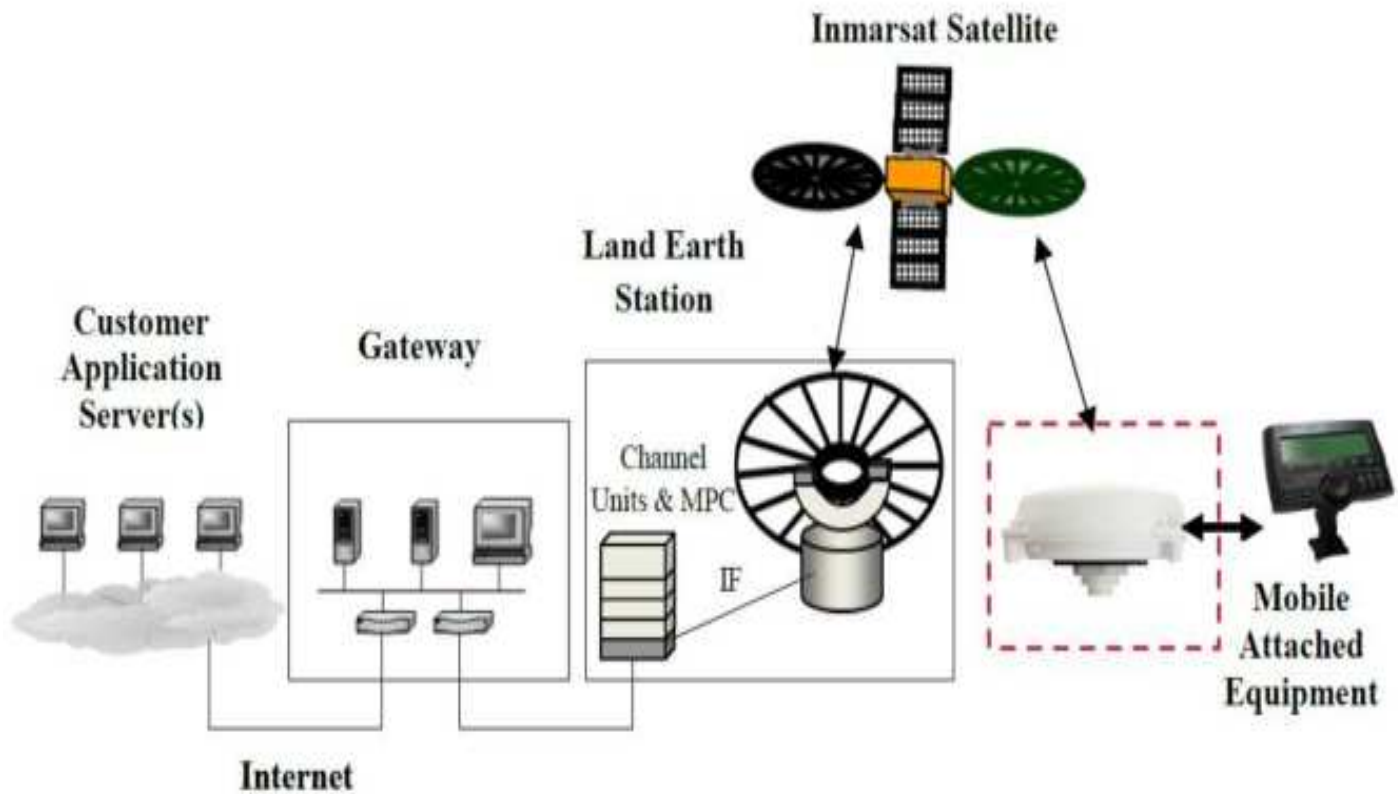


Figure 10 – Typical SAT IDP Installation System Architecture

9.1 Security Checklists

You can mitigate the potential security risk to your site by following the steps listed under each threat.

9.1.1 Infection by Malicious Software Agents

This threat encompasses malicious software agents, for example viruses, spyware (Trojans), and worms. The intrusion of malicious software agents can result in:

- Performance degradation
- Loss of system availability
- The capture, modification, or deletion of data.

Mitigation steps	
Ensure virus protection is installed, signature files are up-to-date, and subscriptions are active on all machines hosting Honeywell products.	<input type="checkbox"/>
Recommend that all SAT IDP software installed should be authorized and approved by Honeywell.	<input type="checkbox"/>
Use a firewall at the interface between other networks and Honeywell components.	<input type="checkbox"/>

9.1.2 Unauthorized External Access

This threat includes intrusion into your Honeywell system from the business network or other external networks including the Internet.

Unauthorized external access can result in:

- Loss of system availability
- The capture, modification, or deletion of data
- Reputation damage if the external access security breach becomes public knowledge.

Mitigation steps	
Implement file system encryption on your systems accessing terminal.	<input type="checkbox"/>
Use HTTPS when using Web servers across untrusted networks.	<input type="checkbox"/>
Use a firewall at the interface between your other networks and Honeywell solution components.	<input type="checkbox"/>
Secure wireless devices.	<input type="checkbox"/>
Set the minimum level of privilege for all external accounts, and enforce a strong password policy.	<input type="checkbox"/>
Disable all unnecessary access ports (ports that are not listed in the Network Ports table). These ports may become gateway to intrusion.	<input type="checkbox"/>

9.1.3 Unauthorized Internal Access

This threat encompasses unauthorized access from people or systems with direct access to a Honeywell system component. This threat is the most difficult to counter since attackers may have legitimate access to part of the system and are simply trying to exceed their permitted access.

Unauthorized internal access can result in:

- Loss of system availability
- The capture, modification, or deletion of data
- The theft or damage of system contents.

Mitigation steps	
Do not allow the use of unauthorized removable media (e.g., microSD™ or microSDHC™ cards) on Honeywell solution components.	<input type="checkbox"/>
Implement strong password protection on Honeywell solution components and include a password lifetime management policy, reuse policy, and strength policy for passwords.	<input type="checkbox"/>
Monitor system access.	<input type="checkbox"/>

9.1.4 Accidental System Change

This threat encompasses inadvertent changes to executables or configuration files. Accidental system change can result in:

- Loss of system availability
- Loss of data.

Mitigation steps	
Set the minimum level of privilege for all accounts, and enforce a strong password policy.	<input type="checkbox"/>
Ensure strong access controls are in place on the file system, directory, and file shares.	<input type="checkbox"/>
Ensure user account control is enabled on relevant Operating Systems.	<input type="checkbox"/>
Maintain regular server and database backups.	<input type="checkbox"/>

9.2 Securing the Infrastructure

Although the security issues for the Honeywell system are generally the same as any IT solution, the physical security of the network and environment is particularly important. If the hardware is rendered inoperable, the operation of Honeywell solution and the entire facility can be compromised.

9.2.1 Physical Location

9.2.1.1 Environmental Factors

When addressing the security needs of your system and data, it is important to consider the following environmental factors:

- Dust, Vibration & Water: Mobile Terminal is rated for IP 66. However, when the unit work in a system environment, need to ensure peripherals also rated equally.
- Temperature and humidity: Please refer the datasheet for temperature and humidity range of operation.

9.2.1.2 Theft Prevention

A major cause of downtime in the IT world is hardware theft, either of whole Mobile Terminal or associated components such as Mobile Computer. At the very least, the mobile computer should be secured to the vehicle, and the case locked and closed.

Appendix A – Specifications

Physical

Dimensions	118 mm x 108 mm x 37 mm (Does not include mounting threads/extensions/cable)
Weight	230g (Excluding cable on SAT-IDP-BC and SAT-IDP-SC variants)
Colour	White
Connector	Refer to page 18

Environmental

Operating temperature:	-40°C to 70°C
Storage temperature:	-40°C to 90°C
Humidity:	≤ 95% RH @ +40°C (+104°F) (non-condensing)
Shock:	MIL-STD-810G (Shock)
Vibration	SAE J1455 & MIL-STD-810G (Vibration)
Ingress Protection (IP) rating:	IP66

Frequency Range

Transmit Band	1626.5 MHz - 1660.5 MHz
Extended Transmit Band	1668 MHz - 675 MHz
Receive Band	1525 MHz - 1559 MHz
Extended Receive Band	1518 MHz - 1525 MHz
GPS	1575.42 ± 1.0 MHz

Elevation Angle

Elevation Angle	0° to 90°
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Transmitter

EIRP	0 - 9dBW
Modulation	2 level FSK, 256Hz tone spacing
Transmit burst duration	2s or 8s
Message length (standard burst)	Up to 84 bits
Message length (double burst)	Up to 170 bits

Receiver

G/T	≥ -25dB/K at EL = 30°
Modulation	32-ary FSK, 20Hz tone spacing
User data rate	~36 bits per seconds
Message length	Up to 800 bits

GPS

Channels	50
Time To First Fix (Typical)	
Cold start:	<30s
Hot start	<3s
Accuracy (SA Off)	
Position (CEP, 2D):	2.5m (CEP, 2D)
Altitude	Maximum 50000m
Dynamic capability	
Velocity:	Maximum 500m/s
Acceleration:	<= 4g
Maximum update interval	1s

Control and Monitoring

Interface	Asynchronous serial RS232
Baud rate	4800 or 9600 bps
Parity/data bits/stop bits	N,8,1

Data Interfaces

5 x I/O	Individually configurable as; <ul style="list-style-type: none">• High voltage digital input (32V max) with falling edge interrupt capability• Switch input (internal pull-up used with external switch to ground)• Digital input (TTL) with falling edge interrupt capability• Analogue input (12 bit ADC, 0 to 3.3V)• Digital output (3.3V, 50µA typical)
1 x Open drain output	<ul style="list-style-type: none">• 250mA max. sink current

Power Consumption (Typical @ 12V)

Sleep	0.5W
Receive (including GPS)	2.3W
Transmit	10W

Power Supply Voltage

Voltage range	9.6V to 32V 'smoothed' DC
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Appendix B – Warranty

Honeywell International Inc. ("HII") warrants its products to be free from defects in materials and workmanship and to conform to HII's published specifications applicable to the products purchased at the time of shipment. This warranty does not cover any HII product which is (i) improperly installed or used; (ii) damaged by accident or negligence, including failure to follow the proper maintenance, service, and cleaning schedule; or (iii) damaged as a result of (A) modification or alteration by the purchaser or other party, (B) excessive voltage or current supplied to or drawn from the interface connections, (C) static electricity or electro-static discharge, (D) operation under conditions beyond the specified operating parameters, or (E) repair or service of the product by anyone other than HII or its authorized representatives.

This warranty shall extend from the time of shipment for the duration published by HII for the product at the time of purchase ("Warranty Period"). Any defective product must be returned (at purchaser's expense) during the Warranty Period to HII factory or authorized service center for inspection. No product will be accepted by HII without a Return Materials Authorization, which may be obtained by contacting HII. In the event that the product is returned to HII or its authorized service center within the Warranty Period and HII determines to its satisfaction that the product is defective due to defects in materials or workmanship, HII, at its sole option, will either repair or replace the product without charge, except for return shipping to HII.

EXCEPT AS MAY BE OTHERWISE PROVIDED BY APPLICABLE LAW, THE FOREGOING WARRANTY IS IN LIEU OF ALL OTHER COVENANTS OR WARRANTIES, EITHER EXPRESSED OR IMPLIED, ORAL OR WRITTEN, INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR NON-INFRINGEMENT.

HII'S RESPONSIBILITY AND PURCHASER'S EXCLUSIVE REMEDY UNDER THIS WARRANTY IS LIMITED TO THE REPAIR OR REPLACEMENT OF THE DEFECTIVE PRODUCT WITH NEW OR REFURBISHED PARTS. IN NO EVENT SHALL HII BE LIABLE FOR INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, AND, IN NO EVENT, SHALL ANY LIABILITY OF HII ARISING IN CONNECTION WITH ANY PRODUCT SOLD HEREUNDER (WHETHER SUCH LIABILITY ARISES FROM A CLAIM BASED ON CONTRACT, WARRANTY, TORT, OR OTHERWISE) EXCEED THE ACTUAL AMOUNT PAID TO HII FOR THE PRODUCT. THESE LIMITATIONS ON LIABILITY SHALL REMAIN IN FULL FORCE AND EFFECT EVEN WHEN HII MAY HAVE BEEN ADVISED OF THE POSSIBILITY OF SUCH INJURIES, LOSSES, OR DAMAGES. SOME STATES, PROVINCES, OR COUNTRIES DO NOT ALLOW THE EXCLUSION OR LIMITATIONS OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.

All provisions of this Limited Warranty are separate and severable, which means that if any provision is held invalid and unenforceable, such determination shall not affect the validity of enforceability of the other provisions hereof. Use of any peripherals not provided by the manufacturer may result in damage not covered by this warranty. This includes but is not limited to: cables, power supplies, cradles, and docking stations. HII extends these warranties only to the first end-users of the products. These warranties are non-transferable.

The duration of the limited warranty for the SAT-IDP is one year.

Appendix C – Declaration of Conformity

<Waiting for Conformity>

Appendix D – Inmarsat Type Approval

<Certification in progress>

Appendix E – Product Information

It is essential that the following information be completed at the time of installation/purchase to ensure that any future warranty claims are dealt with as expeditiously as possible.

DATE OF PURCHASE:

PURCHASED FROM:

SAT-IDP ISN:

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SAT-IDP SERIAL
NUMBER:

IMPORTANT: Please keep in a safe place for future reference

NOTES:

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